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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,767	01/07/2002	Kurt W. Weber	EXCLN.098A	3196

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KNOBBE MARTENS OLSON & BEAR LLP  
2040 MAIN STREET  
FOURTEENTH FLOOR  
IRVINE, CA 92614

EXAMINER

HOWELL, DANIEL W

ART UNIT	PAPER NUMBER
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3722

DATE MAILED: 12/17/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/041,767

Applicant(s)

WEBER ET AL.

Examiner

Daniel W. Howell

Art Unit

3722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 18-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 3722

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 18-51 rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese '907 in view of Arai et al '171. Figure 2 of Japanese '907 shows an initial fast feed FF, a centering feed Q1 to the top of the workpiece, a drilling feed Q2 to a specified depth, a retraction FR to a point below the top of the workpiece, and then a succession of drilling feeds beyond the previous hole depth and retractions to points below the top of the workpiece until the desired depth has been reached. It is clear that the distance Q2 is longer than the distance FR. The long line FR on the far right of figure 2 represents the retraction when the drilling operation is complete. It is considered to be inherent that the distance FR can be entered by an operator. Figures 9 and 10 show the computer controlled drilling machine which will perform the operation, a workpiece 8 being located on worktable 7. Japanese '907 does not explicitly show that the workpiece being a printed circuit board. Figures 2, 3, and 5-8 of Arai et al '171 clearly show that it is well known to perform a series of incremental drilling operations on a stack of printed circuit boards. In view of this teaching of Arai et al, it is considered to have been obvious to have used the machine and incremental drilling process of Japanese '907 to drill a stack of printed circuit boards in order to form holes having a good surface quality and positional accuracy.

3. On line 2 of claim 19, "the" should be deleted. On line 3 of claim 23, "height" should be changed to "distance." On line 2 of claim 25, a space should be inserted after the word "board."

Art Unit: 3722

On line 3 of claim 27, the second period should be deleted. On line 3 of claim 47, "aid" should be deleted. On line 12 of claim 52, a comma should be inserted after "boards."

4. Figure 1A-1H, 5A, and 6A should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to because the photographs of figures 5A, 5B, 6A, and 6B are quite fuzzy. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

6. Claims 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese 245908 in view of Japanese '907. Figure 13 of Japanese '908 shows a plurality of drilling spindles operating on a plurality of printed circuit boards located on moving table 102. Figure 6 shows the drilling sequence, wherein the bit is successively moved forward and rearward to drill the hole in steps. In each instance, the drill bit is moved completely out of the stack of printed circuit boards, which wastes time. Figure 2 of Japanese '907 teaches that time may be saved by merely retracting the drill bit above the hole depth a distance FR, without completely removing the bit from the workpiece. In view of this teaching of Japanese '907, it is considered to have been obvious to have not retracted the bit of Japanese '908 completely out of the workpiece in order to reduce the time required to drill the hole.

Art Unit: 3722

7. Applicant's arguments filed October 2, 2003, have been fully considered but they are not persuasive. The claims have been amended to set forth the combination with a printed circuit board, and new art has been applied as needed to teach this feature.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning the content of this communication from the examiner should be directed to Daniel Howell, whose telephone number is 703-308-1728. The examiner's office hours are typically about 10 am until 6:30 pm, Monday through Friday. The examiner's supervisor, Andrea Wellington, may be reached at 703-308-2159.

Any inquiries concerning other than the content of this and previous communications, such as missing references or filed papers not acknowledged, should be directed to the Customer Service Center for Tech Center 3700 at 703-306-5648.

In order to reduce pendency and avoid potential delays, Group 3720 is encouraging FAXing of responses to Office actions directly into the Group at FAX number 703-872-9306. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a USPTO deposit account. Please identify Examiner Daniel Howell of Art Unit 3722 at the top of your cover sheet.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is 703-308-1148.

Application/Control Number: 10/041,767

Page 5

Art Unit: 3722

A handwritten signature in black ink, appearing to read 'Howell', written in a cursive style.

Daniel W. Howell  
Primary Examiner  
Art Unit 3722